Remarks

The Examiner is thanked for the Office Action mailed 01/02/03 (request enclosed for 1-month extension to respond). Claims 1-39 are pending and under consideration in the present application, while claims 40-58 were withdrawn from consideration. The objections/rejections in the Action are discussed below (Paragraph sub-headings refer to the numbered paragraphs of the Action).

Paragraph 3

In the Action the Examiner fist noted that the information disclosure statement did not comply with 37 CFR 1.98(a)(2) on the basis that there were no copies of the cited references. Enclosed is a copy of the stamped and dated postcard returned from the Patent Office indicating that all reference copies were in fact received by the PTO and apparently went missing in the PTO. Since the references were indeed originally received by the PTO, the Examiner is requested to now initial the enclosed copy of the 1449 form from the previous information disclosure submission. A further courtesy copy of all the references cited in the information disclosure statement is enclosed.

Paragraphs 5

The Examiner objected to the disclosure since the processor was designated by both "140" and "141" on page 17. The Examiner is thanked for noting this error. The above amendment to the paragraph on page 17 now corrects this.

Paragraph 6

The Examiner objected to the drawings as the item "14b" which appears in FIG. 9 was not mentioned in the description. A "DRAWING CORRECTION APPROVAL" is enclosed in which it is proposed to delete reference "14b" from FIG. 9.

Paragraph 8

The Examiner next rejected claims 1-39 under 35 U.S.C. 112, second paragraph, as being indefinite.

The Examiner first rejected claim 3 on the basis that it referred to a multi-dispenser group of paragraph (a) or (b) of claim 1 while paragraph (a) of claim 1 did not mention a "multi-dipenser group". Claim 3 has now been amended to clarify that this is a location to which the drop is deposited. Claims 4, 17, 21, 26 have similarly been amended. Consequently, it is believed this rejection can now be withdrawn.

The Examiner next rejected claims 1, 20, 25, and 38 on the basis that they recite "repeating step (a) if required" and that the claims did not clearly recite the requirements that must be present for this to be performed. However, claims 1, 25, 38 specifically recite "repeating step (a) if required, until the addressable array is formed". Claim 20 has been amended to more clearly also use the foregoing language. Thus, the claims do in fact recite the requirements for when this repeating of (a) is performed (that is, "until the addressable array is formed"). Accordingly, it is believed this rejection should now be withdrawn.

In the same paragraph the Examiner rejected claims 1, 20, 25, 38 on that basis that it was unclear what is the difference between a "multi-dispenser drop group" and a "reagent drop set". The Examiner concluded that the claims required deposition of a drop set and plus two multi-dispenser drop groups. The "wherein" clause of claims 1, 20, 25 previously referenced the "cycles" referenced in (a) and (b) and was therefore not an additional step. However, to make this clearer, claims 1, 20, 25 have been amended to recite:

> "wherein, for each of multiple locations, a multi-dispenser drop group is deposited over one or more cycles of (a) and (b) for a corresponding location which group includes drops which are deposited from different dispensers;"

Claim 38 has similarly been amended to have the "wherein" clause reference paragraphs (a) and (b).

Thus, these claims now more clearly recite that the "wherein" clause is not a separate addition. Thus, considering claim 1, that claim requires depositing a reagent drop set in a cycle so as to attach a corresponding moiety for that location (and optionally repeating this until the array is formed). For each of multiple locations, a

multi-dispenser drop group is deposited over one or more of those cycles for a corresponding location, which group includes drops which are deposited from different dispensers. Drops are additionally deposited and detected at respective separate locations on the substrate from the different dispensers which deposit a multi-dispenser drop group. Thus, while a reagent drop set is deposited in each cycle of (a), drop depositing in those cycles is in a manner such that a multi-dispenser drop group is deposited for a corresponding location. This group includes drops which are deposited from different dispensers. However, (c) does additionally require "the depositing and detecting drops at respective separate locations on the substrate from different dispensers which deposit a multi-dispenser drop group". In this manner, different dispensers which deposit drops onto a same location during the one or more cycles, are additionally used to deposit drops at separate locations which are detected. This allows the performance of each of those dispensers (which deposited at a same location) to be evaluated without interference from the other (this aspect is described, for example, on page 4, lines 4-28 of the present application).

In view of the above amendments to claims 1, 20, 25, 38, it is believed this rejection should now be withdrawn.

The Examiner next rejected claim 5 on the basis that it was unclear to which drops the phrase "...wherein drops are deposited" referred to. Claim 5 has now been amended to specifically reference paragraph (c) of claim 1. Accordingly, it is believed this rejection should now be withdrawn.

What is the difference

The Examiner next rejected claim 6 as redundant over claim 1. Claim 1 recites "detecting drops at respective separate locations on the substrate". Claim 6 has now been amended to more clearly recite "wherein in step (c) the drops are detected on the separate locations on the substrate". Page 8, lines 22-26 make it clear that detecting drops "at" a location is broader in scope that detecting them "on" a location:

> "Detecting a drop "at" a location, includes the drop being detected while it is traveling between a dispenser and that location, or after it has contacted that location (and hence may no longer retain its original shape) such as capturing an image of a drop on the substrate after it has assumed an approximately circular shape of a deposited drop."

Consequently, in view of this clarifying amendment it is believed this rejection should now be withdrawn.

The Examiner next rejected claim 17 on the basis that it was unclear what is "a multi-dispenser drop set". Claim 17 has now been amended to recite "a multi-dispenser drop group" consistent with the language of claim 1. Accordingly, it is believed this rejection should now also be withdrawn in view of this clarifying amendment.

The Examiner next stated that is was unclear as to what is considered a "cycle" so that is was unclear as to what is in the claims, particularly claims 29-30. The first definition of "cycle" in the Merriam-Webster On-Line dictionary (available at www.merriam.com) is:

> "**1 :** an interval of time during which a sequence of a recurring succession of events or phenomena is completed"

Claims 29, 30 are dependent upon claim 25 which recites "(a) depositing a reagent drop set during a cycle so as to attach a monomeric unit of the corresponding polymer for that location". Thus, an interval of time during which a reagent drop set is deposited and which results in a monomeric unit becoming attached to that location, is a "cycle" in claim 25. Repetition of the foregoing events at that location (although not necessarily with the same monomeric unit being attached) in another interval of time is another "cycle". Note that the foregoing is also consistent with the description of "cycles" at, for example, page 1, line 25 to page 2, line 16). Accordingly, since the use of "cycle" in the claims is clear, it is submitted that this rejection should now be withdrawn.

Paragraph 10

The Examiner rejected claims 1-2, 5-7, 9-11, 20, 25, 27, 31-32, and 38-39 under 35 U.S.C. 102(b) as being anticipated by Little et al. (US 6,024,025).

As the Examiner is aware, in order to establish a case of anticipation the reference must disclose every feature of the rejected claims. One of the differences between claim 1 and Little is that claim 1 requires:

> a multi-dispenser drop group is deposited over one or more cycles of (a) and (b) for a corresponding location which group includes drops which are deposited from different dispensers;
>
> the method additionally comprising:
>
> (c) depositing and detecting drops at respective separate locations on the substrate from different dispensers which deposit a multi-dispenser drop group.

As pointed out by the Examiner, Little discloses array fabrication. The Examiner alleges that the Little references uses a CCD camera in column 16, lines 56-65 to capture images of the deposited drops (note that in the foregoing lines the CCD camera is only actually used to image the drops of DNA as deposited on top of the matrix material). The Examiner also alleges that Little discloses that the matrix and DNA material can be deposited by different pins. However, even assuming that the foregoing is a depositing, over one or more cycles, of a multi-dispenser drop group for a location which group includes drops from different dispensers, the limitation of paragraph (c) of claim 1 is still not met by Little. In particular, if Little's different pins which deposit matrix material and DNA are considered to be a multi-dispenser drop group, paragraph (c) above additionally requires the depositing and detecting drops at respective separate locations on the substrate from the different dispensers which deposit a multi-dispenser drop group. That is, in Little the matrix and DNA drops would additionally have to be deposited and detected at separate locations on the substrate surface. The Examiner has not alleged Little discloses any such feature, nor does it. Similarly, the remainder of claims 2, 5-7, 9-11, 20, 25, 27, 31-32 all require a same or narrower limitation as paragraph (c) of claim 1.

Accordingly, for the foregoing reason alone the rejection of claims 1-2, 5-7, 9-11, 20, 25, 27, 31-32 should be withdrawn.

As to claims 38, 39 these claims require:

> "(c) depositing and detecting drops from the different dispensers **at respective separate locations on the substrate**, wherein the drops are deposited at **a separate test pattern area between arrays** with the **number of locations of the test pattern area during any one cycle being less than one tenth the number of locations in the smallest of the arrays which the test pattern area is between**.

The Examiner has not alleged any such features are found in Little, nor are they. Accordingly this rejection of claims 38, 39 should also be withdrawn.

In addition to the above, claim 25 (and 27, 31-32 which are dependent thereon) specifically require: that a monomeric unit be attached during each cycle (para. (a)), that the multi-dispenser drop group deposited in the one or more cycles for a location includes drops from different dispensers ("wherein" clause), and that drops are also deposited and detected at separate locations from dispensers which deposit a multi-dispenser drop group (para. (c)). The Examiner does not allege that Little discloses such a procedure where monomers are attached and the multi-dispenser drop group which deposits at a same location for one or more of the cycles also deposits drops at separate locations which are detected. Accordingly, for this additional reason this rejection of claims 25, 27, 31-32 should now be withdrawn.

Paragraph 16

The Examiner next rejected claims 1-2, 6, 12, 18, 20, 25, 27, 31-32, and 38-39 under 35 U.S.C. 103(a) as being unpatentable over Shalon et al. (US 6,110,426). The Examiner points out that Shalon et al. discloses the fabrication of microarrays, and that the solid support carrying the microarrays is analyzed as a single sheet of material using standard radioactive, fluorescent, or colorimetric detection means. Considering first claim 1, this claim requires:

> a multi-dispenser drop group is deposited over one or more cycles of (a) and (b) for a corresponding location which group includes drops which are deposited from different dispensers;
>
> the method additionally comprising:
>
> (c) depositing and detecting drops at respective separate locations on the substrate from different dispensers which deposit a multi-dispenser drop group.

Shalon merely discloses how to fabricate the microarrays then detect and analyze from them after use. The Examiner has not pointed to anything in Shalon which discloses or suggests that different dispensers which deposit a group of drops at a location ("a" location means the same location), are also used to deposit drops at separate locations on the substrate which are then detected. Nor is there any such disclosure or suggestion. Similarly, the remainder of claims 2, 6, 12, 18, 20, 25, 27,

31-32 all require a same or narrower limitation as paragraph (c) of claim 1. Accordingly, for the foregoing reason it is submitted that this rejection should now be withdrawn.

In addition to the above, claim 20 requires in paragraph (c), the depositing and detecting drops from different dispensers which deposit a multi-dispenser drop group onto the substrate at respective separate locations, in a test pattern area separate from the array. The Examiner has not pointed to any disclosure or suggestion in Shalon for such a separate test pattern area, nor at which separate test pattern area drops from a multi-dispenser drop group (which deposits drops at a same location on the array) are separately deposited and also detected. Nor can such a disclosure or suggestion be found in Shalon for either of these two features. Accordingly, for this additional reason, this rejection of claim 20 should now be withdrawn.

As to claims 38, 39, as pointed out above these claims require:

> "(c) depositing and detecting drops from the different dispensers **at respective separate locations on the substrate**, wherein the drops are deposited at **a separate test pattern area between arrays** with the **number of locations of the test pattern area during any one cycle being less than one tenth the number of locations in the smallest of the arrays which the test pattern area is between**.

The Examiner has not alleged any such features are disclosued or suggested in Shalon, nor are they. Accordingly this rejection of claims 38, 39 should also be withdrawn.

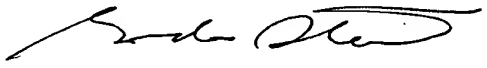
Paragraph 14

The Examiner next rejected claims 8-11, 13-14, and 33 under 35 U.S.C. 103(a) as being unpatentable over Little et al. in view of Wilhelm et al (US 5,715,327). While Applicant disagrees that these references can be properly combined to arrive at the invention of these claims, it is noted that the rejected claims are dependent upon claim 1 or 25. This rejection therefore assumes that the invention of claims 1 or 25 is disclosed or suggested by Little. As pointed out above though, Little neither discloses nor suggests the inventions of claims 1 or 25. Accordingly, even if Little can be combined with Wilhelm et al. in the manner suggested by the

Examiner, the invention of dependent claims 8-11, 13-14, and 33 would still not be obtained. It is submitted in view of this, that this rejection should now be withdrawn.

In view of the above, it is believed that claims 1-39 as amended should now be in condition for allowance. If the Examiner is of the view that there are any outstanding issues, he is invited to call Gordon Stewart at (650)485-2386.

Respectfully submitted,



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